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(54) Coin dispenser and coin pay-out method

Münzausgeber und Verfahren zur Münzausgabe

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EP-A- 0 122 138 **EP-A- 0 266 021**
EP-A- 0 312 316 **DE-A- 3 128 235**

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Description

The present invention relates to a coin dispenser and a method of paying out coins. More particularly, the present invention relates to a coin dispenser applied to a coin-operated machine such as a gaming machine, and relates also to a coin pay-out method in which fraud can be detected in operation of the coin-operated machine.

A coin-operated machine is operated in response to insertion of coins, tokens, medals or other disks (herein referred to as coins) into an inlet slot. Such coin-operated machines include slot machines, other gaming machines, vending machines and money-changing machines. A slot machine for example, incorporates a coin dispenser, which discharges coins, as stored in the slot machine, down into a coin trough. At a discharging port of the coin dispenser, there is arranged a coin pay-out sensor, which is adapted to detecting a coin as passed through the discharging port, so as to send a detecting signal to a pay-out counter. The counter counts detecting signals, and when the counted value comes up to be equal to the number of coins according to dividend as instructed to the coin dispenser, a motor for discharge is stopped from rotating, to terminate discharge of coins.

However, the conventional coin dispenser is vulnerable to fraud committed by a fraudulent player to the pay-out sensor. In such a fraud, a flexible long tool is inserted into the pay-out sensor through the trough in advance of instruction for pay-out. The sensor is kept insensitive coin by coin, keeping the pay-out counter from stepping. There arises a problem in that, although the pay-out counter counts no steps or steps fewer than coins to be paid out, the player could receive coins including extra coins not detected at the pay-out sensor, thus more coins than is proper.

EP-A-0 266 021 discloses a coin dispenser including a rotary disc. A logic control circuit is provided for controlling the dispensation of coins. In addition to counting the numbers of coins dispensed, the logic circuit is arranged to rotate the disc in reverse in the event that it detects a jam.

EP-A-0 312 316 discloses a coin dispenser including an alarm unit. If an output signal sent from a count sensor to the alarm unit after the output signal from a preset counter is inputted to the alarm unit, cheating is detected and an alarm is triggered.

DE-A-3 128 235 discloses a coin dispenser whose output path is provided with hinged flaps.

According to the present invention there is provided a coin dispenser for paying out a coin through a discharging port when receiving instruction of pay-out, comprising:

a discharging section for discharging said coin toward said discharging port;
a sensor arranged at said discharging port for generating a detecting signal when detecting said coin;

counting means for counting said detecting signal so as to generate a count signal; and
control means for driving said discharging section in accordance with said pay-out instruction, and for stopping said discharging section from actuation to complete said pay-out when a count value of said count signal comes to be a predetermined number of coins to be paid out, characterised in that said control means is arranged to keep said discharging section from actuation if said detecting signal is received before said pay-out instruction.

In a preferred embodiment hereinafter described and illustrated a discharging section discharges the coin toward the discharging port. A sensor is arranged at the discharging port for generating a detecting signal when detecting the coin. Counting means counts the detecting signal so as to generate a count signal. Control means drives the discharging section in accordance with the pay-out instruction, and stops the discharging section from actuation to complete the pay-out when a count value of the count signal comes to be a predetermined number of coins to be paid out. The control means monitors the sensor and, if the detecting signal is received before receiving the pay-out instruction, keeps the discharging section from actuation. Therefore, a coin-operated machine can be protected from fraud with the provision of a simple structure.

In a preferred embodiment, if the detecting signal is received before receiving the pay-out instruction or after completing the pay-out, the control means signals an error. Moreover, a blocking plate is arranged to be shiftable between respective positions of closing and opening the discharging port, and to be pushed by the coin as passed through the discharging port, thereby displaced from the closed position into the open position so as to allow the coin to pass.

Note that a known coin dispenser has a jam-eliminating construction in which, if it detects an unchanged level in the detecting signal over a predetermined period, the disk is rotated reverse at an amount and subsequently rotated normally. This is for the purpose of eliminating a jamming of coins in the coin dispenser the coin is discharge and would lack further detecting signals at the pay-out sensor. Such jam being eliminated, the motor for discharge is prevented from being loaded excessively, and protected from damage. The coin dispenser with the jam-eliminating construction would be still vulnerable to fraud committed by a fraudulent player to the pay-out sensor with a long tool. In such a fraud, the tool would be at first inserted into the pay-out sensor in advance of receiving instruction for pay-out. The sensor would be kept insensitive coin by coin, keeping the pay-out counter from stepping. Then the external tool would be withdrawn during the reverse rotation of the motor, before the motor would again rotate normally. As illustrated in Fig. 7, four coins are discharged while counting only one in the first normal rotation, as well as five coins

are discharged while counting five in the second normal rotation. Thus the player would fraudulently obtain the nine coins during the six steps as counted by use of the external tool.

The novel coin dispenser in combination with a jam-eliminating construction, however, can protect a coin-operated machine from fraud with the provision of a simple structure.

The invention will be further described by way of example in the following detailed description when read in connection with the accompanying drawings, in which:

Fig. 1 is a perspective view illustrating a slot machine incorporating a novel coin dispenser;

Fig. 2 is a perspective view illustrating the slot machine so open that the coin dispenser appears;

Fig. 3 is an exploded perspective view illustrating the coin dispenser;

Fig. 4 is a cross section illustrating a discharging slot of the coin dispenser, with relevant structures;

Fig. 5 is a block diagram illustrating electrical arrangement of the slot machine with the coin dispenser;

Fig. 6 is a flow chart illustrating a coin pay-out method according to the novel coin dispenser; and

Fig. 7 is a timing chart illustrating how a prior coin dispenser has suffered from fraud utilizing insertion of a tool.

In Fig. 1 illustrating a slot machine incorporating a novel coin dispenser 23, a front door 3 is openably mounted on a main body 2 of the slot machine. In the front door 3 are formed windows 4 for external observation of symbols on reels incorporated in respective reel units 5, 6 and 7. Under the windows 4, there are arranged an inlet slot 8 through which coins C are inserted, a starting lever 10 for rotating the reel units 5 to 7 at a time, and stop buttons 11 and 13 for stopping the reel units 5 to 7 respectively.

To begin a game, a player inserts one, two or three coins C into the inlet slot 8. Winning lines for effective alignment of symbols are selected among horizontal or slant lines across the three reel units 5 to 7. The more coins C are inserted, the more winning lines are selected. Operation of the starting lever 10 rotating the reel units 5 to 7, the stop buttons 11 to 13 are actuated to stop the reel units 5 to 7 respectively. Upon stopping in the positions meeting a winning combination as shown and upon determination of a win, coins C are paid out to a trough 14. An indicator 15 displays also the number of coins C as paid out.

In Fig. 2, the inside of the front door 3 is provided with a coin selector 20 having an inspector sensor 20a for judging acceptability of the coin C as inserted, and a gate plate 20b. When the coin C is detected as unacceptable namely different from a predetermined denomination, the gate plate 20b opens a return chute 21 to pass the coin C down to the trough 14. When the coin

C is detected as acceptable namely of the predetermined denomination, the gate plate 20b opens an accepting chute 22 to pass the coin C down to a storage bucket 24 of the novel coin dispenser 23 in the center of the slot machine. In the accepting chute 22 is arranged a coin acceptance sensor 35, which is connected to an acceptance counter 36 for counting only the acceptable coins as inserted, later to be described in detail. Note that the reel units 5 to 7, including each reel, stepping motor, and sensor for monitoring a rotational position of the reel, are omitted from Fig. 2, but are actually mounted in the slot machine.

Fig. 3 illustrates the coin dispenser 23, which is generally constituted of a electrically driven discharging section 25 and the storage bucket 24. The discharging section 25 has a motor 49 actuated by a pay-out controller 45 and a rotary disk 27 rotated by the motor 49. When the disk 27 is rotated counterclockwise, the coins brought through a passage opening 24a in the storage bucket 24 are subjected to centrifugal force on the disk 27, are moved into an exit slot and guided through a communicating guide passageway 28 formed in a discharging section 25.

In the guide passageway 28 is arranged a coin pay-out sensor 29 of a photoelectric type, constituted of a light projector 29a and a light receiver 29b. When a beam from the projector 29a is blocked by a coin C, the receiver 29b generates a detecting signal of the High level, and sends it to the pay-out controller 45 and a pay-out counter 47, later to be described.

A coverage 30 is fixed at the passageway 28 to cover the pay-out sensor 29 by use of screws. The coverage 30 is provided with a discharging slot 31 as port and a hinged plate 32 openably blocking the slot 31. As illustrated in Fig. 4, the weight of the blocking plate 32 causes it to close the slot 31, as indicated by the full line, so as to prevent players from inserting a long tool through the trough 14 into the slot 31, e.g. prevent fraudulent players from committing fraud of operating the pay-out sensor 29 externally. When the coin C moves through the passageway 28, the coin C presses the blocking plate 32 to the outside and swings it into the position as indicated with the phantom line so as to open the slot 31 entirely. The coin C as passed through the slot 31 is dropped into the return chute 21 and discharged into the trough 14.

In Fig. 5 illustrating the electrical arrangement, the coin acceptance sensor 35 detects acceptable coins C as inserted into the inlet slot 8. The acceptable coins C as detected is counted by the acceptance counter 36 so as to determine the number of winning lines of symbols. The acceptance sensor 35, in view of at least one accepted coin C, generates a start-enabling signal and sends it to a starter 37, which, in response to actuation of the starting lever 10, generates a starting signal.

The starting signal is sent into a reel controller 38 and a random number generator 39. In response to the starting signal, the reel controller 38 drives stepping mo-

tors respectively incorporated in the reel units 5 to 7. The random number generator 39, in response to the starting signal, samples one random number from a train of random numbers within a predetermined range, and enters the sampled number into a prize judging circuit 40.

According to the sampled number from the random number generator 39, the prize judging circuit 40 determines a win of the game as played. To the prize judging circuit 40 is connected a win grade table 41, which stores information of all the retrievable random numbers respectively as associated with either of a great win, a medium win, a small win and a loss (no win). The prize judging circuit 40 refers to the win grade table 41, and determines one of the four winning grades associated with the sampled number. A stop-designating table stored in the prize judging circuit 40 is referred to, so that, according to the one winning grade as address data, a combination of stop-designated positions is sent into the reel controller 38.

When the stop buttons 11 to 13 are operated, a stop signal generator 42 sends a stop signal to the reel controller 38, to start a control of stopping the reel units 5 to 7. By controlling the reel units 5 to 7, the symbols appear along a respective effective winning line in such a manner as to meet a particular symbol combination associated with the winning grade as selected in the prize judging circuit 40. When the reels are completely stopped, the reel units 5 to 7 send back information of stopped rotational positions to the reel controller 38, the prize judging circuit 40 receives the stopped rotational position information from the reel controller 38 and confirms the stopped positions as associated with the one winning grade. To confirm this, a winning combination table stored in the prize judging circuit 40 is referred to, so that, according to combination of stopped positions as address data, a winning combination is obtained. The prize judging circuit 40 refers to a dividend determining table 46 storing association of each winning grade with dividend, and then sends to a pay-out controller 45 a loss signal or a pay-out signal representing the number of coins to be paid and constituting instruction of pay-out.

When a loss or pay-out signal is generated, the pay-out controller 45 initially monitors the pay-out sensor 29 to find existence of a detecting signal. If the pay-out sensor 29 has generated a detecting signal, then the pay-out controller 45 drives the coin selector 20, to open the return chute 21, to communicate the inlet slot 8 directly to the trough 14, and to avoid paying of coins C. The controller 45 also drives the indicator 15 to display an error. If the pay-out sensor 29 has not generated any detecting signal despite existence of a pay-out signal, then the pay-out controller 45 sends a drive signal to a driver 48. If a loss signal is received without generation of any detecting signal from the pay-out sensor 29, a game is terminated without paying out of any coins C.

When a drive signal is sent in the driver 48, the mo-

tor 49 is rotated normally namely in the forward direction, to rotate the disk 27. The rotation of the disk 27 sends the coins C from under the storage bucket 24, through the passageway 28 toward the discharging slot 31. When the coin C passes through the pay-out sensor 29, a detecting signal is sent into the pay-out counter 47 and the pay-out controller 45. The pay-out counter 47 incrementally counts one step upon lowering of the detecting signal. When the counted value comes up to be equal to the number of coins according to dividend as associated, the pay-out controller 45 stops the motor 49 from rotating.

It can happen that the generation of detecting signals is abnormal, which will imply a jamming state of coins in or under the storage bucket 24 on the surface of the disk 27: the coins are overlapped one on another in a manner of giving rise to a gap or hollowness between or under the coins. In response to continuance of High level or Low level of a detecting signal for a predetermined period, a sequence for eliminating the jamming of coins is performed, by stopping once the motor 49, rotating it reverse, stopping it again, and successively rotating it normally. To be precise, this jam-eliminating sequence can be performed when no detecting signal is generated for three seconds even after starting the motor 49, when no detecting signal is generated after the latest detecting signal, and when one detecting signal has a temporal width at the High level over four seconds.

Referring to Fig. 6, operation of the above-constructed coin dispenser is now described. With the coin C inserted through the inlet slot 8, the starting lever 10 is swung down, to operate rotation of the reel units 5 to 7. The stop buttons 11 to 13 are pressed to stop the reel units 5 to 7. When it is confirmed that a symbol combination along a winning line meets a winning combination, then the prize judging circuit 40 sends a pay-out signal to the pay-out controller 45.

When the pay-out signal is sent to the pay-out controller 45, the pay-out controller 45 detects existence of a detecting signal. If there has been a detecting signal generated, then the pay-out controller 45 drives the coin selector 20, opens the return chute 21, communicates the inlet slot 8 directly to the trough 14, and avoids paying of coins C. The indicator 15 is caused to display an error. Thus the novel construction avoids such a fraud that insertion of a flexible long tool through the trough 14 would keep the pay-out sensor 29 from detecting coins and cause the coin dispenser 23 to pay more coins than is enough. Note that, although the error as detected is indicated on the indicator 15, it can be signaled both visually and acoustically, e.g. by use of a loud speaker or a buzzer.

When no detecting signal has been generated by the pay-out sensor 29, the pay-out controller 45 receives a pay-out signal associated with a dividend, to cause the driver 48 to rotate the motor 49 normally. The coin C is guided through the passageway 28 into the slot 31,

pushes open the blocking plate 32, and falls through the return chute 21 down to the trough 14. As the blocking plate 32 hinders external tools from insertion, it can prevent a fraud of causing the pay-out sensor 29 to malfunction, and causing the coin dispenser 23 to pay more coins than is enough. When each coin C passes through the pay-out sensor 29, one new detecting signal is generated. When detecting signals increase so as to equal to the number of dividend coins, then the pay-out controller 45 stops the motor 49 from rotating. Pay-out is completed, to terminate one game.

When the pay-out controller 45 detects a detecting signal unchanged between the High and Low levels for several seconds in normal rotation of the motor 49, it is estimated there to be jamming of coins. The motor 49 is stopped, and then rotated reverse for a predetermined period. This is effective for eliminating such a jamming of coins that the coins are overlapped one on another in a manner of giving rise to a gap or hollowness between or under the coins.

The motor 49 is rotated in the normal direction again. The coins are discharged through the discharging slot 31. The pay-out controller 45 again receives lowering of the detecting signals within the predetermined period. The pay-out counter 47 counts the coins as paid out, until the controller 45 judges that the count value has come up to the dividend as retrieved. The controller 45 completes pay-out by stopping the motor 49.

Although the motor 49 rotates again normally, it is possible that the pay-out controller 45 detects a detecting signal unchanged between the High and Low levels for several seconds for the second time. If it does, then the motor 49 in the coin dispenser 23 is stopped. The pay-out controller 45 drives the coin selector 20, opens the return chute 21, communicates the inlet slot 8 directly to the trough 14, and avoids playing of coins C. The indicator 15 is caused to display an error.

If one game is lost at the prize judging circuit 40 while the reel units 5 to 7 are operated and stopped, then a loss signal is generated to terminate the game. If a detecting signal is generated before generation of a loss signal, the controller 45 drives the coin selector 20 to communicate the inlet slot 8 to the trough 14 for avoidance of coin acceptance. The indicator displays an error, upon which the error is acoustically signaled as well.

In the above embodiment, the pay-out counter 47 is of a general type of counting step by step. Alternatively, a preset counter may be used instead, which may store a predetermined number, e.g. ten of coins, and may be adapted to generate a signal of termination of counting the predetermined number. To use this, a signal of the predetermined number may be sent to the preset counter from the pay-out controller 45 according to a pay-out signal associated with one particular dividend to be paid according to the combination of stopped positions.

In the above embodiment, existence of a detecting signal is monitored after generation of a pay-out or loss

signal. Alternatively, existence of a detecting signal may be monitored after stopping of the reels before generation of a pay-out or loss signal. Existence of a detecting signal, also, may be monitored periodically.

Although the present invention has been fully described by way of the preferred embodiments thereof with reference to the accompanying drawings, various changes and modifications within the scope of the claims will be apparent to those having skill in this field.

Claims

1. A coin dispenser (23) for paying out a coin (C) through a discharging port (31) when receiving instruction of pay-out, comprising:

a discharging section (25) for discharging said coin toward said discharging port;
a sensor (29) arranged at said discharging port for generating a detecting signal when detecting said coin;
counting means (47) for counting said detecting signal so as to generate a count signal; and
control means (45) for driving said discharging section in accordance with said pay-out instruction, and for stopping said discharging section from actuation to complete said pay-out when a count value of said count signal comes to be a predetermined number of coins to be paid out, characterised in that said control means (45) is arranged to keep said discharging section (25) from actuation if said detecting signal is received before said pay-out instruction.

2. A coin dispenser as defined in claim 1, wherein existence of said detecting signal is checked when receiving said pay-out instruction.
3. A coin dispenser as defined in claim 1 or 2, wherein, if said detecting signal is received before receiving said pay-out instruction or after completing said pay-out, said control means (45) further signals an error.
4. A coin dispenser as defined in claim 3, wherein said error is adapted to announcement of fraudulent external operation committed to said sensor (29).
5. A coin dispenser as defined in claim 4, further comprising an external indicator (15) for signaling said error visually.
6. A coin dispenser as defined in claim 1, 2, 3 or 4, which is incorporated in a coin-operated machine (2);

which further comprises a storage section (24)

arranged upstream from said discharging section (25) for storing a plurality of coins (C), and a selector (20) for exiting said coin, as inserted into said coin-operated machine, as soon as said control means has signaled said error.

7. A coin dispenser as defined in claim 6, wherein said selector (20) further inspects said coin (C) as inserted into said coin-operated machine (2) in order to guide said coin into said storage section (24) when said coin is acceptable, and to exit said coin when said coin is unacceptable.

8. A coin dispenser as defined in claim 7, wherein:

a passage opening (24a) is formed in a bottom of said storage section (24);
said discharging section (25) includes:
a disk (27) for receiving a coin supplied from said storage section through said passage opening, and for rotating said coin thereon to slide said coin outward under centrifugal force; and
a guide passageway (28) open to a circumference of said disk for guiding said coin, as slid under centrifugal force, toward said discharging port.

9. A coin dispenser as defined in claim 8, wherein, if said control means (45) detects an unchanged level in said detecting signal over a predetermined period, said disk (27) is rotated reverse at an amount and subsequently rotated normally.

10. A coin dispenser as defined in claim 9, wherein, if said control means (45) detects an unchanged level in said detecting signal over a predetermined period after said reverse and normal rotation of said disk (27), said control means signals an error.

11. A coin dispenser as defined in any one of the preceding claims, further comprising a blocking plate (32) arranged to be shiftable between respective positions of closing and opening said discharging port (31), and to be pushed by said coin as passed through said discharging port, thereby displaced from said closed position into said open position so as to allow said coin to pass.

12. A coin dispenser as defined in claim 11, wherein said blocking plate (32) is arranged outside said discharging port (31), and is externally inoperable from said closed position toward said open position.

13. A coin dispenser as defined in claim 12, wherein said blocking plate (32) is hinged rotatably, and is in said closed position under gravity.

14. A method of paying a coin (C) out of a coin dispenser (23) in which said coin is discharged through a discharging port (31) by driving a discharging section (25) when receiving instruction of pay-out, comprising:

generating a detecting signal when detecting said coin at said discharging port;
counting said detecting signal;
stopping said discharging section from actuation to complete said pay-out when detecting signals as counted come to be a predetermined number of coins to be paid out; and
if said detecting signal is received before said pay-out instruction, keeping said discharging section from actuation.

15. A coin pay-out method as defined in claim 14, further comprising steps of:

if said detecting signal is received before receiving said pay-out instruction, signaling an error; and
if said detecting signal is received after completing said pay-out, signaling an error.

Patentansprüche

1. Münzausgeber (23) zur Abgabe einer Münze (C) durch eine Ausgabeöffnung (31) bei Erhalt eines Ausgabebefehls, mit:

einem Ausgeber (25) zur Abgabe der Münze an die Ausgabeöffnung;

einem Sensor (29), der an der Ausgabeöffnung zur Erzeugung eines Anzeigesignals beim Erfassen der Münze angeordnet ist;

einer Zähleinrichtung (47) zum Zählen der Anzeigesignale zwecks Abgabe eines Zählsignals; und

einer Steuereinrichtung (45) für den Antrieb des Ausgebers in Übereinstimmung mit dem Ausgabebefehl und zum Anhalten des Ausgebers, um die Abgabe weiterer Münzen zu unterbrechen, wenn ein Zählwert des Zählsignals einer vorgegebenen Anzahl von auszugebenden Münzen entspricht, dadurch gekennzeichnet, daß die Steuereinrichtung (45) den Ausgeber (25) abschaltet, wenn das Anzeigesignal vor dem Ausgabebefehl erhalten wird.

2. Münzausgeber nach Anspruch 1, wobei das Auftreten des Anzeigesignals geprüft wird, wenn der Ausgabebefehl erhalten wird.

3. Münzausgeber nach Anspruch 1 oder 2, wobei die Steuereinrichtung (45) ferner einen Fehler anzeigt, wenn das Anzeigesignal vor Erhalt des Ausgabebefehls oder nach Durchführung der Ausgabe empfangen wird.

4. Münzausgeber nach Anspruch 3, wobei der Fehler an die dem Sensor (29) übergebene Information eines betrügerischen Betriebs von außen adaptiert ist.

5. Münzausgeber nach Anspruch 4, wobei ferner ein Außenanzeiger (15) zur optischen Anzeige des Fehlers vorgesehen ist.

6. Münzausgeber nach Anspruch 1, 2, 3 oder 4, der in eine mit Münzen betätigte Maschine (2) eingebaut ist;

ferner einen stromauf vom Ausgeber (25) angeordneten Speicher (24) zum Speichern einer Vielzahl von Münzen (C) aufweist; sowie

einen Auswähler (20) zum Ausstoß der in die mit Münzen betätigte Maschine eingegebene Münze, sobald die Steuereinrichtung den Fehler angezeigt hat.

7. Münzausgeber nach Anspruch 6, wobei der Auswähler (20) ferner die in die mit Münzen betätigte Maschine (2) eingegebene Münze (C) prüft, um die Münze an den Speicher (24) weiterzugeben, wenn die Münze annehmbar ist, und um die Münze auszustößen, wenn die Münze unannehmbar ist.

8. Münzausgeber nach Anspruch 7, wobei:

im Boden des Speichers (24) eine Durchgangsöffnung (24a) ausgebildet ist und

der Ausgeber (25) eine Scheibe (27) zur Aufnahme einer von dem Speicher durch die Durchgangsöffnung abgegebenen Münze und zur Rotation der Münze auf der Scheibe aufweist, um die Münze unter der Zentrifugalkraft nach außen zu schieben; sowie

einen zum Umfang der Scheibe hin offenen Führungskanal (28), um die unter der Zentrifugalkraft verschobene Münze zur Ausgabeöffnung zu leiten.

9. Münzausgeber nach Anspruch 8, wobei die Scheibe (27) sich in umgekehrter Richtung um einen Betrag und danach normal dreht, wenn die Steuereinrichtung (45) im Anzeigesignal über eine vorgegebene Zeitdauer hinweg einen unveränderten Wert erfasst.

10. Münzausgeber nach Anspruch 9, wobei die Steuereinrichtung (45) einen Fehler anzeigt, wenn sie in dem Anzeigesignal über eine vorgegebene Zeitdauer hinweg nach der umgekehrten und der normalen Drehung der Scheibe (27) einen unveränderten Wert erfasst.

11. Münzausgeber nach einem der vorhergehenden Ansprüche, wobei eine Sperrplatte (32) vorgesehen ist, die derart angeordnet ist, daß sie zwischen einer Schließstellung und einer Öffnungsstellung für die Ausgabeöffnung (31) verschiebbar ist und durch die Münze bewegt wird, wenn sie durch die Ausgabeöffnung läuft, wodurch die Sperrplatte von der Schließstellung in die Öffnungsstellung gestellt wird, um ein Hindurchlaufen der Münze zu ermöglichen.

12. Münzausgeber nach Anspruch 11, wobei die Sperrplatte (32) außerhalb der Ausgabeöffnung (31) angeordnet ist und von außen nicht von der Schließstellung in die Öffnungsstellung bringbar ist.

13. Münzausgeber nach Anspruch 12, wobei die Sperrplatte (32) drehbar aufgehängt ist und sich unter der Schwerkraft in der Schließstellung befindet.

14. Verfahren zur Ausgabe einer Münze (C) aus einem Münzausgeber (23), aus dem die Münze durch eine Ausgabeöffnung (31) durch den Antrieb eines Ausgebers (25) bei Erhalt eines Ausgabebefehls ausgegeben wird, mit folgenden Verfahrensschritten:

Erzeugung eines Anzeigesignals beim Erfassen der Münze an der Ausgabeöffnung;

Zählen der Anzeigesignale;

Anhalten des Ausgebers zur Unterbrechung der Ausgabe, wenn die gezählten Ausgangssignale eine vorbestimmte Anzahl von auszugebenden Münzen erreicht; und

Abschalten des Ausgebers, wenn das Anzeigesignal vor dem Ausgabebefehl erhalten wird.

15. Verfahren zur Ausgabe von Münzen nach Anspruch 14, wobei ferner ein Fehler angezeigt wird,

wenn das Anzeigesignal vor Erhalt des Ausgabebefehls empfangen wird, und

ein Fehler angezeigt wird, wenn das Anzeigesignal nach Durchführung der Ausgabe erhalten wird.

Revendications

1. Distributeur de pièces de monnaie (23) pour verser une pièce (C) à travers un orifice de décharge (31) lors de la réception d'une instruction de versement, comprenant :
 - une section de décharge (25) pour décharger ladite pièce en direction dudit orifice de décharge ;
 - un capteur (29) disposé au niveau dudit orifice de décharge pour produire un signal de détection lors de la détection de ladite pièce ;
 - des moyens de comptage (47) pour compter ledit signal de détection de façon à produire un signal de compte ; et
 - des moyens de commande (45) pour entraîner ladite section de décharge en fonction de ladite instruction de versement, et pour arrêter l'actionnement de ladite section de décharge pour terminer ledit versement lorsqu'une valeur de compte dudit signal de compte vient à être un nombre prédéterminé de pièces à verser,
 caractérisé en ce que lesdits moyens de commande (45) sont agencés pour empêcher l'actionnement de ladite section de décharge (25) si ledit signal de détection est reçu avant ladite instruction de versement.
2. Distributeur de pièces de monnaie selon la revendication 1, dans lequel l'existence dudit signal de détection est contrôlé lors de la réception de ladite instruction de versement.
3. Distributeur de pièces de monnaie selon la revendication 1 ou la revendication 2, dans lequel, si ledit signal de détection est reçu avant la réception de ladite instruction de versement ou après la terminaison dudit versement, lesdits moyens de commande (45) signalent en outre une erreur.
4. Distributeur de pièces de monnaie selon la revendication 3, dans lequel ladite erreur est adaptée pour annoncer une opération extérieure frauduleuse commise sur ledit capteur (29).
5. Distributeur de pièces de monnaie selon la revendication 4, comprenant en outre un indicateur extérieur (15) pour signaler visuellement ladite erreur.
6. Distributeur de pièces de monnaie selon l'une des revendications 1, 2, 3 ou 4, qui est incorporé dans une machine actionnée par des pièces de monnaie
 - qui comprend en outre une section de stockage (24) disposée en amont de ladite section de dé-
- charge (25) pour stocker une multiplicité de pièces de monnaie (C) ; et
- un sélecteur (20) pour évacuer ladite pièce, introduite dans ladite machine actionnée par des pièces, dès que lesdits moyens de commande ont signalé ladite erreur.
7. Distributeur de pièces de monnaie selon la revendication 6, dans lequel ledit sélecteur (20) vérifie en outre ladite pièce (C), introduite dans ladite machine actionnée par des pièces (2), afin de guider ladite pièce dans ladite section de stockage (24) lorsque ladite pièce est acceptable et pour évacuer ladite pièce lorsque ladite pièce est inacceptable.
8. Distributeur de pièces de monnaie selon la revendication 7, dans lequel :
 - une ouverture de passage (24a) est formée dans le fond de ladite section de stockage (24) ;
 - ladite section de décharge (25) comprend :
 - un disque (27) pour recevoir une pièce fournie par ladite section de stockage à travers ladite ouverture de passage et pour faire tourner ladite pièce sur lui pour faire glisser ladite pièce vers l'extérieur par l'action de la force centrifuge ; et
 - un passage de guidage (28) ouvert sur une circonférence dudit disque pour guider ladite pièce, glissant sous l'action de la force centrifuge, en direction de l'orifice de décharge.
9. Distributeur de pièces de monnaie selon la revendication 8, dans lequel, si lesdits moyens de commande (45) détectent un niveau inchangé dans ledit signal de détection sur une période prédéterminée, ledit disque (27) tourne en sens inverse d'un certain angle et tourne ensuite normalement.
10. Distributeur de pièces de monnaie selon la revendication 9, dans lequel, si lesdits moyens de commande (45) détectent un niveau inchangé dans ledit signal de détection pendant une période prédéterminée après ladite rotation inverse et normale dudit disque (27), lesdits moyens de commande signalent une erreur.
11. Distributeur de pièces de monnaie selon l'une quelconque des revendications précédentes, comprenant en outre une plaque de blocage (32) disposée pour pouvoir être déplacée entre des positions respectives de fermeture et d'ouverture dudit orifice de décharge (31) et pour être poussée par ladite pièce passée à travers ledit orifice de décharge, étant ainsi déplacée de ladite position fermée à ladite position ouverte pour permettre à ladite pièce de passer.

12. Distributeur de pièces de monnaie selon la revendication 11, dans lequel ladite plaque de blocage (32) est disposée à l'extérieur dudit orifice de décharge (31) et ne peut être actionnée de l'extérieur pour passer de ladite position fermée vers ladite position ouverte. 5
13. Distributeur de pièces de monnaie selon la revendication 12, dans lequel ladite plaque de blocage (32) est articulée à pivotement et est dans ladite position fermée sous l'action de la gravité. 10
14. Procédé pour verser une pièce de monnaie (C) d'un distributeur de pièces de monnaie (23), dans lequel ladite pièce est déchargée à travers un orifice de décharge (31) en actionnant une section de décharge (25) lors de la réception d'une instruction de versement, comprenant les étapes suivantes : 15
- produire un signal de détection lors de la détection de ladite pièce au niveau dudit orifice de décharge ; 20
 - compter lesdits signaux de détection ;
 - arrêter l'actionnement de ladite section de décharge pour terminer ledit versement lorsque les signaux de détection comptés arrivent à être un nombre prédéterminé de pièces à verser ; et 25
 - si ledit signal de réception est reçu avant ladite instruction de versement, empêcher l'actionnement de ladite section de décharge. 30
15. Procédé de versement de pièces de monnaie selon la revendication 14, comprenant en outre les étapes suivantes : 35
- si ledit signal de détection est reçu avant la réception de ladite instruction de versement, signaler une erreur ; et
 - si ledit signal de détection est reçu après la terminaison dudit versement, signaler une erreur. 40

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FIG. 1

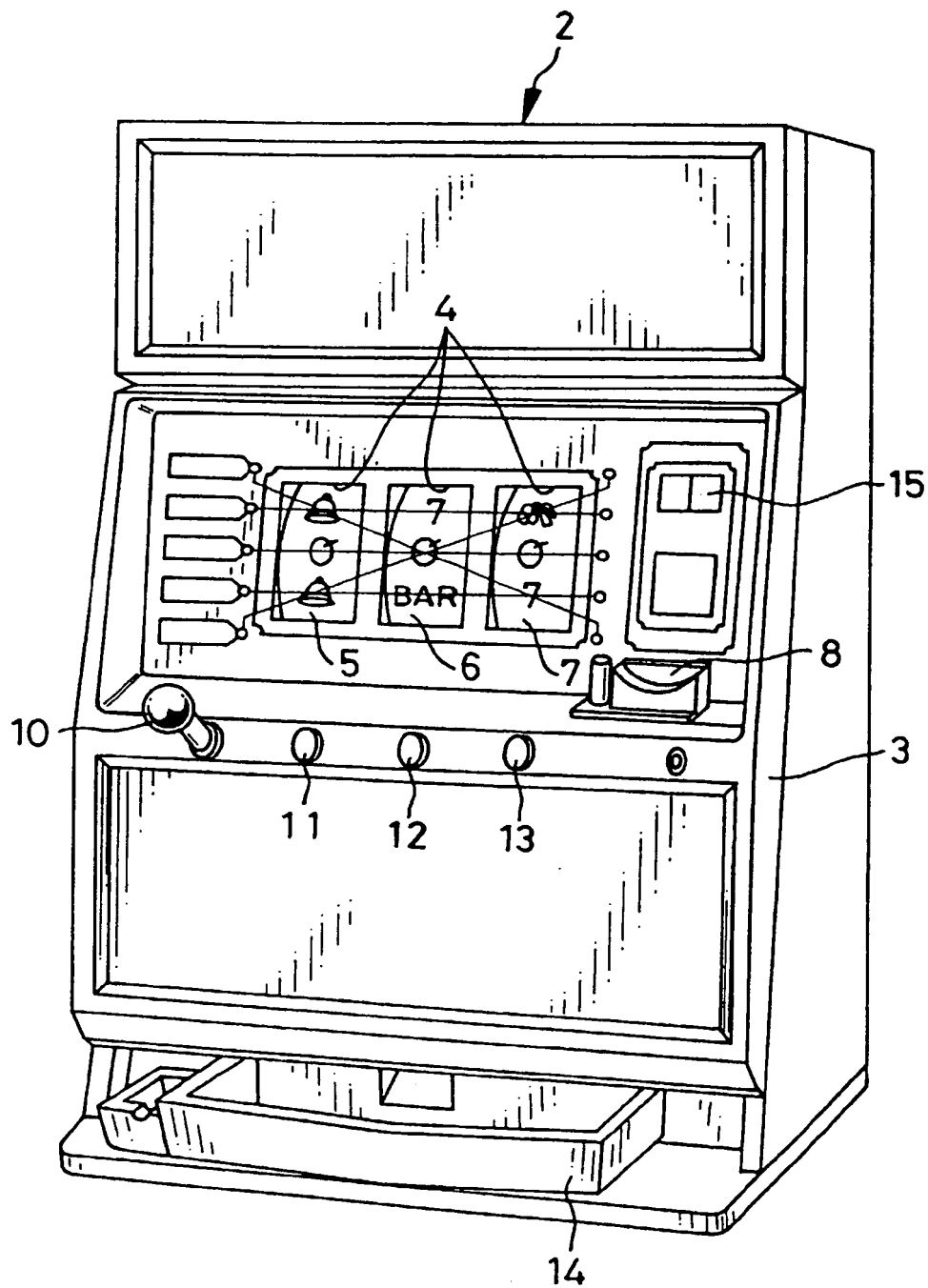


FIG. 2

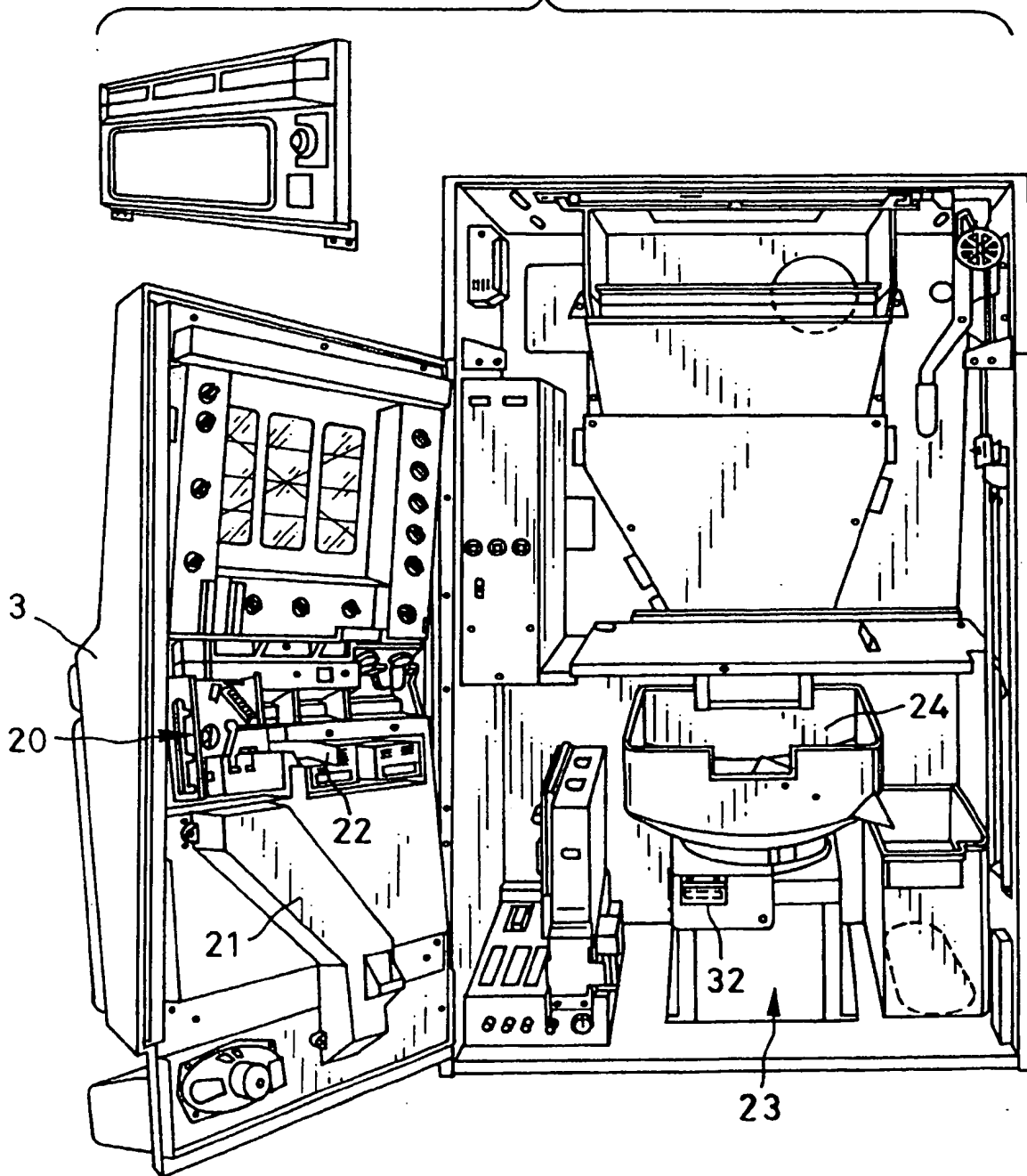


FIG. 3

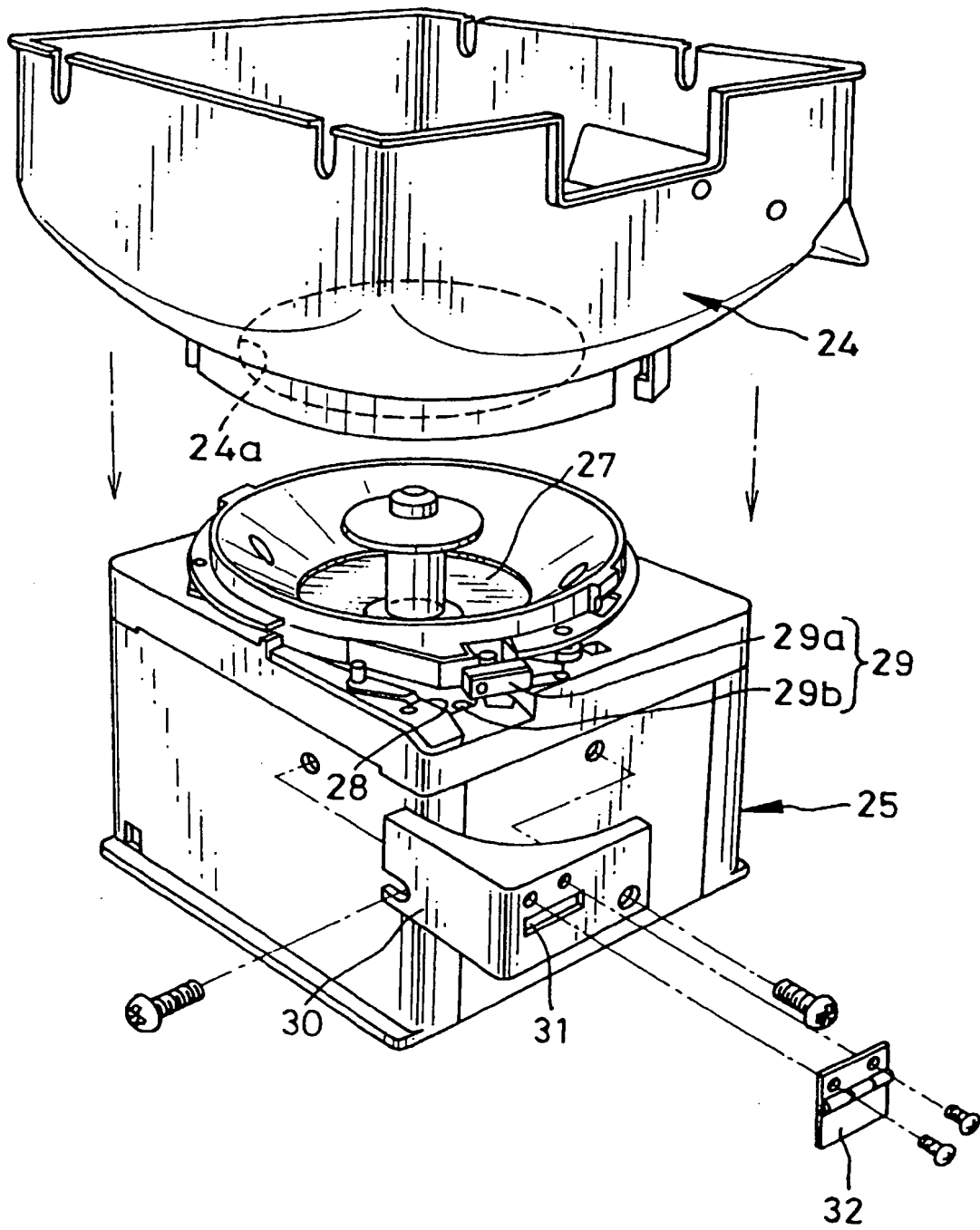
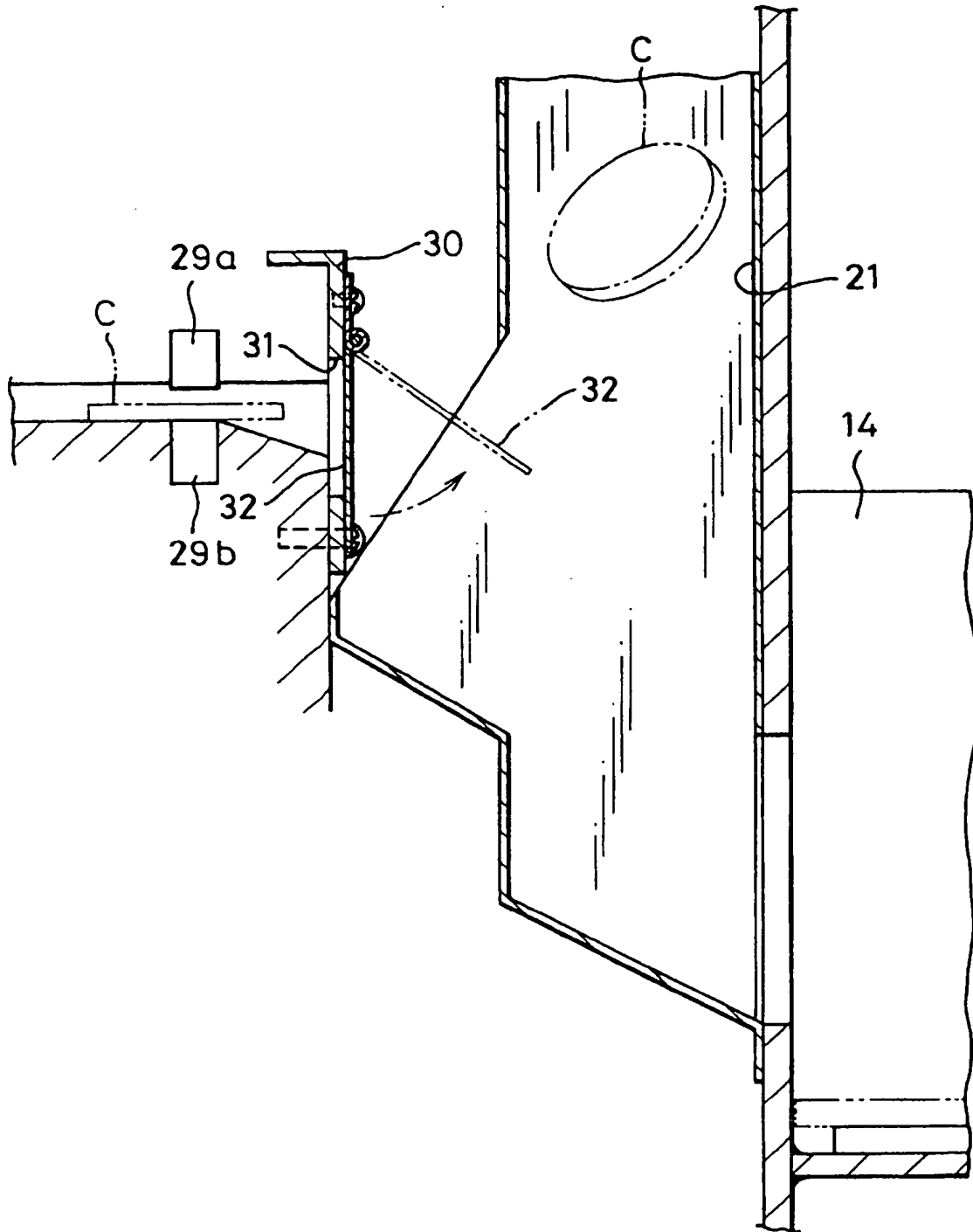


FIG. 4



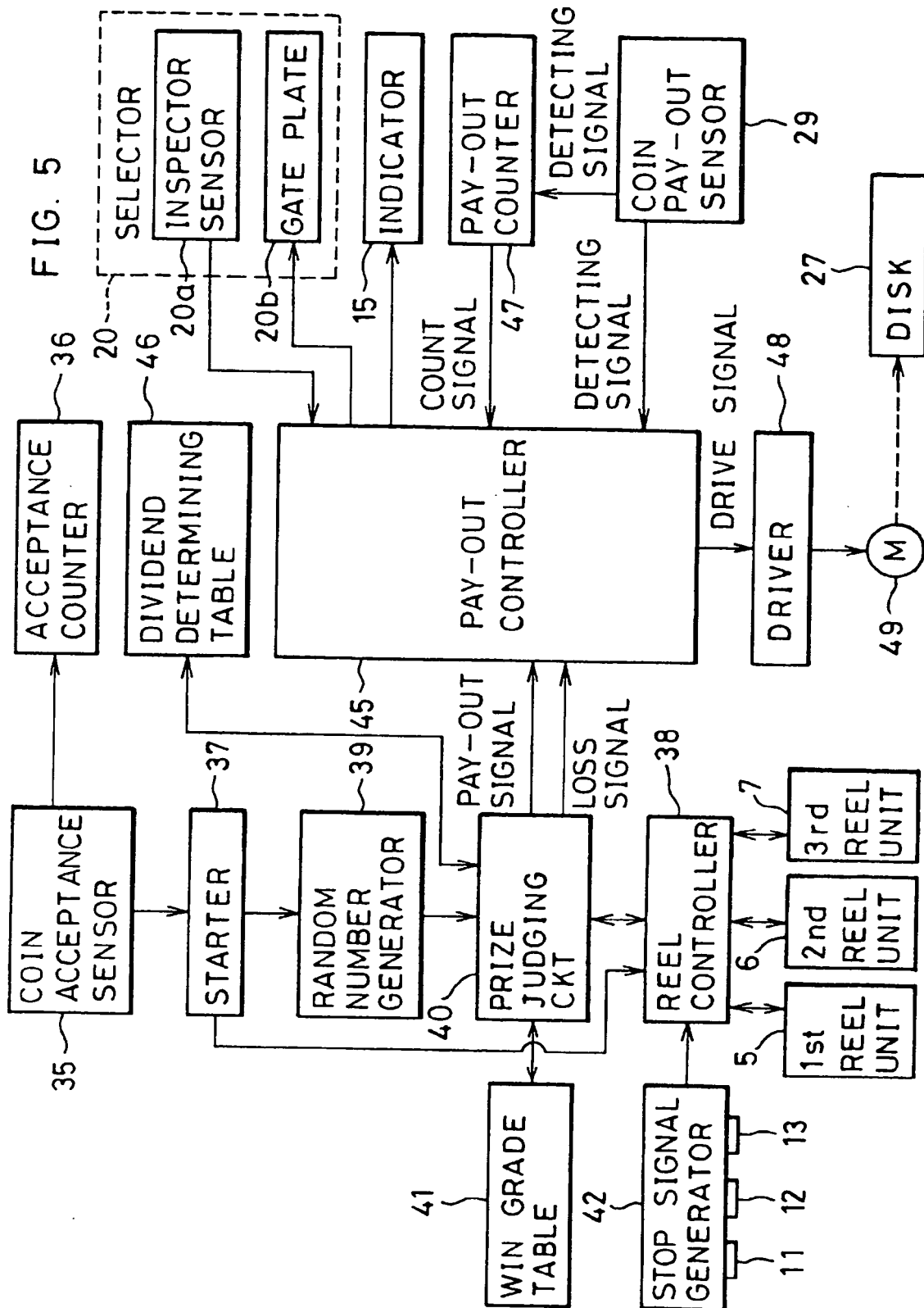


FIG. 6

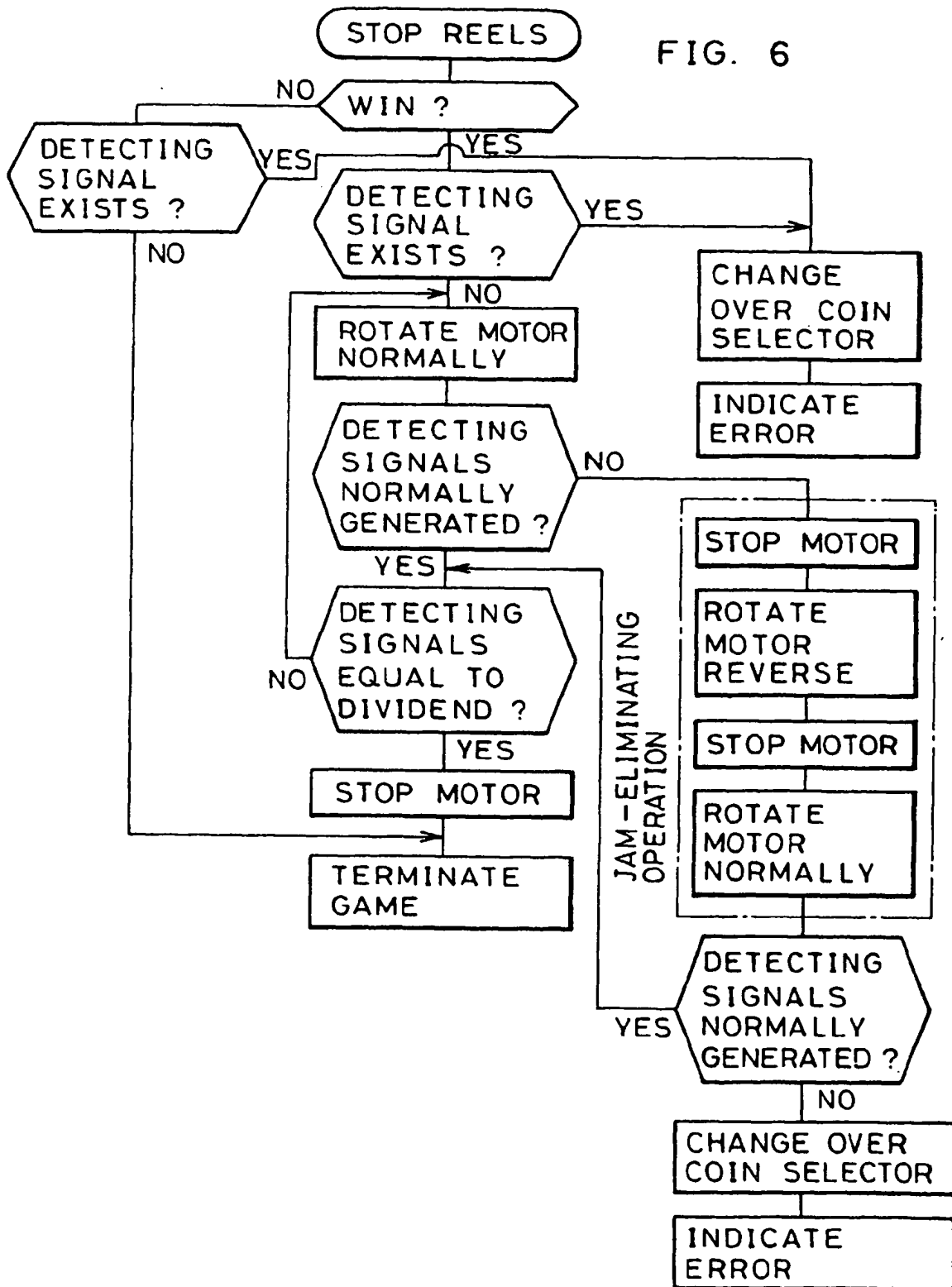
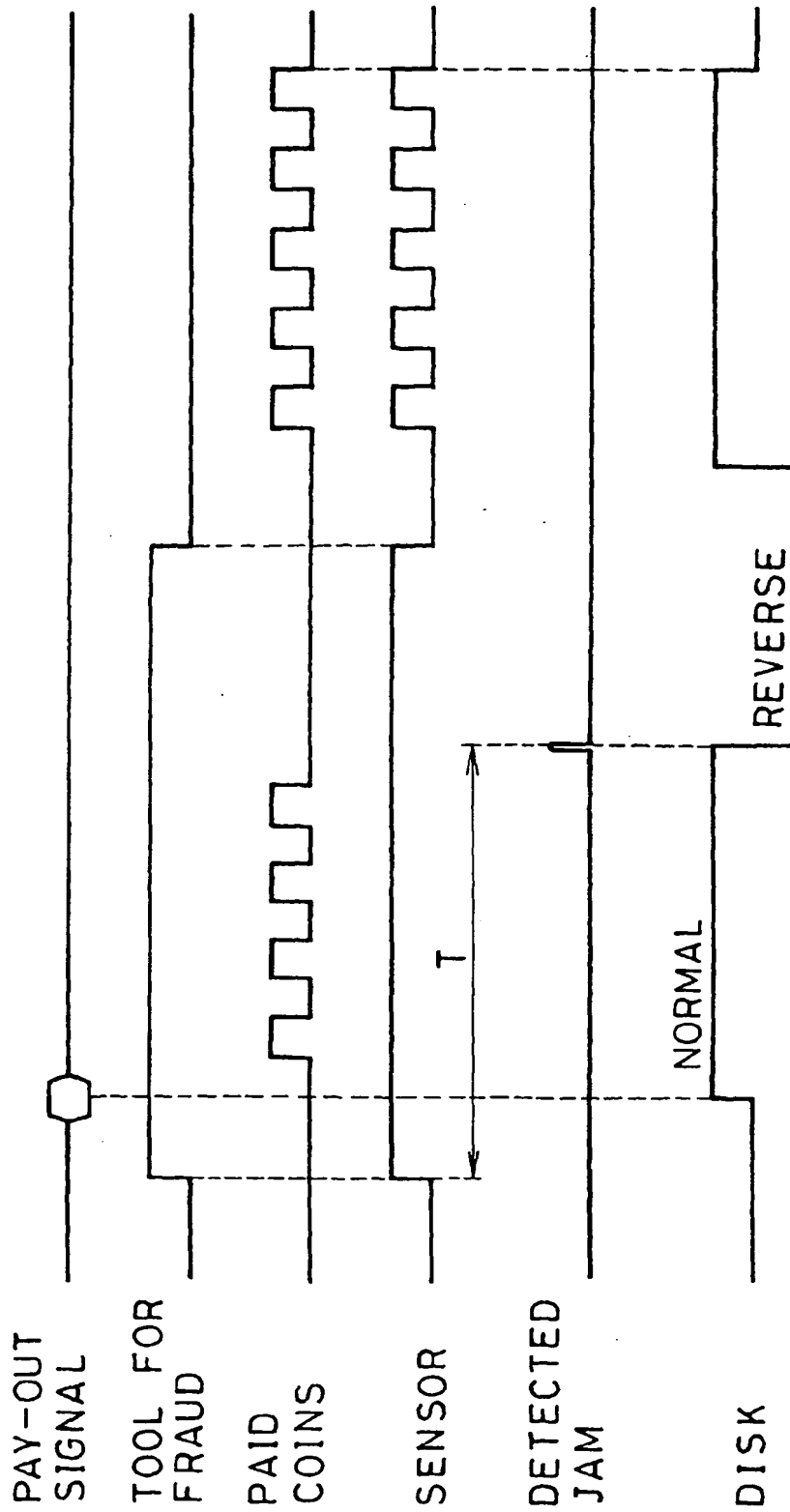


FIG. 7
(PRIOR ART)



(19)



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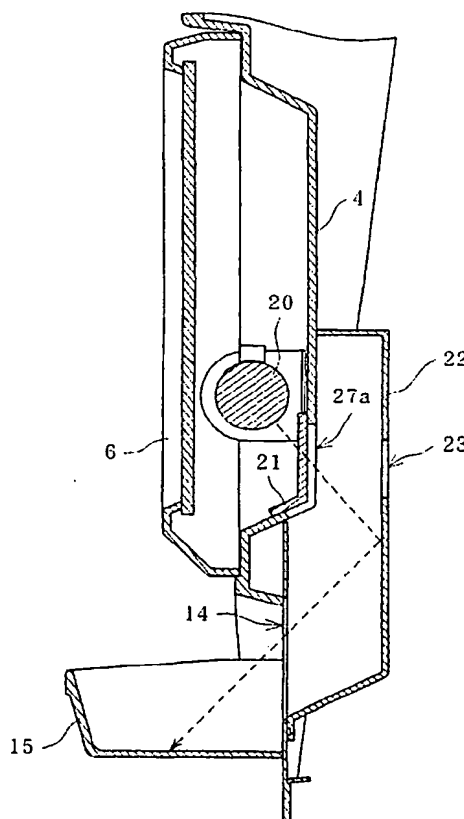
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(54) **Gaming machine**

(57) A gaming machine that is provided with an outlet for paying out gaming media has a receiver for paying-out the gaming media, the receiver being disposed forward of the outlet. The receiver is illuminated so as to permit the player to view the gaming media that has been collected in the receiver, whereby the amount thereof readily can be confirmed. Illumination of the receiver is achieved from within the gaming machine, the illumination being emitted from the outlet for paying the gaming media. Thus, as the gaming media is paid out, a glistening effect that is entertaining and visually pleasing is created. Illumination of the receiver, which may be in the form of a receiver tray, is effected, in one form of the invention, by an internal source of illumination that also illuminates the front panel of the gaming machine. Light is propagated through a transmission element to the receiver. In a preferred form, a further light source is disposed behind the chute via which the gaming media is provided to the outlet. Depending upon the location of the further light source with respect to the chute, multiple reflections are employed within the chute to deliver the light to the outlet. The coloration of the light that is delivered to the outlet may be controlled by the further light source itself or a colored transmission element. This permits interesting decorative coloration schemes to be effected, thereby raising the player's interest in playing the game.

FIG. 4

Description

Background of the Invention

FIELD OF THE INVENTION

[0001] This invention relates generally to gaming machines, such as slot machines and pachinko gaming machines, and more particularly to gaming machines that use gaming media, such as coins or a gaming ball.

DESCRIPTION OF THE RELATED ART

[0002] A known slot machine has a main body on which disposed a variable display that is arranged to have several reels that include various kinds of displayed symbols, and a front door that can be opened and shut freely and that is fixed to the main body of the slot machine. The front door is provided with a synthetic resin frame fitted with a transparent indication panel and a translucent decorative panel therein. For example, a translucent plastic board that may be colored or decorated is used as the decorative panel. In this embodiment, the decorative effect of the decorative panel is enhanced by illumination from a fluorescent lamp disposed behind the decorative panel.

[0003] In the above slot machine, coins or medals are used as the gaming media. Before the game is started, a coin is inserted into a coin slot and a start lever is operated by a player. These actions initiate the variable indication of various kinds of symbols. The variable indication of symbols is stopped by operation of a stop button by the player, or by passage of a predetermined period. A standstill state of the symbols is indicated by an indication window on the indication panel of the slot machine. If a combination of symbols is present in the indication window when the variable display has been stopped corresponding to a winning prize, a number of coins predetermined for the winning prize begin to be paid out from within the main body of the slot machine into a coin receiving tray disposed at the bottom of the front door.

[0004] A decorative panel positioned above the coin receiving tray is illuminated by a fluorescent lamp that is internal to the slot machine. However, in known slot machines, such illumination by the fluorescent lamp will not illuminate the coin receiving tray. It serves only to achieve a decorative effect. Accordingly, the known slot machine has a disadvantage in that it is difficult to identify the number of coins paid out by the coin payout outlet to the coin receiving tray.

[0005] In Japanese Patent Application Kokai (Laid-Open)No. 6-261973, a structure is disclosed in which a light induction board (illustratively an acrylic acid resin board) is disposed in the bottom interior of the front door frame of the slot machine. The front door accommodates a decorative panel therein. The end portion of the light induction board is indicated as protruding outward-

ly. By this known arrangement, the light is propagated within the light induction board toward the coin receiving tray, whereupon same is illuminated.

[0006] It is a disadvantage of this known arrangement that the illumination of the tray by the light induction board is insufficient due to propagation losses within the light induction board. Light is absorbed within the light induction board due to many reflections therewithin. In short, the light supplied from the end of the light induction board achieves a decorative effect, but does not have enough illuminating power to illuminate the coin receiving tray. Such weak illumination of the coin receiving tray precludes even the attentive player from viewing the outlet of the paid-out coins.

Summary of the Invention

[0007] It is, therefore, an object of this invention is to provide a gaming machine wherein a player readily can confirm gaming media collected in a coin receiving tray of the gaming machine. This is achieved by an illumination arrangement that illuminates the receiving tray fully. The illumination arrangement of the present invention additionally achieves a decorative and entertaining effect during the payment of gaming media that catches the attention of the player.

[0008] In accordance with the invention, a gaming machine is provided with an outlet for paying out gaming media, and a receiver for the paid-out gaming media that is disposed forward the outlet. Additionally, there is provided an illumination arrangement that supplies light from the interior of the outlet toward the receiver.

[0009] The illumination arrangement of the present invention illuminates the receiver without significant attenuation of the illuminating power of the light source that would result from multiple reflections within the interior of the outlet as the light is propagated toward the receiver. Thus, the player can easily confirm how much gaming medium is stored in the receiver. In addition to the above, in embodiments of the invention where the gaming medium is formed of a material that reflects the light, a decorative and entertaining effect is achieved when the glistening gaming medium comes out from within the outlet.

[0010] In an embodiment where an illumination arrangement includes an internal light source for illuminating a decorative panel disposed on the front surface of the gaming machine and a reflection surface for reflecting light from the internal light source toward the outlet of paid-out gaming media, the light from the internal light source is propagated toward the interior of the outlet. The light is reflected therewithin as it is propagated toward the receiver of the paid-out gaming media. This structure is economical because only light source(s) internal to the main body of the gaming machine are used, without requiring any significant modification to the internal structure.

[0011] In a further embodiment of the present inven-

tive illumination arrangement, an internal light source is provided for illuminating a decorative panel disposed on the front surface of the gaming machine, an optical transmission member that transmits light from the internal light source inside the outlet of the paid-out gaming media, and a reflection surface for reflecting the light transmitted inside the outlet of paid-out gaming media toward the outlet of paid-out gaming media. The light from the internal light source propagates through an optical transmission member to the interior of the outlet. After one or more reflections within the outlet, the light illuminates the receiver. In such an embodiment, the optical transmission member may be colored whereby the light that passes therethrough has a color different from that of the internal light source. This use of coloration can increase the decorative effect.

[0012] In a still further arrangement in which the illumination arrangement is provided with a further light source additional to the internal light source that illuminates the decorative panel disposed on the front surface of the gaming machine. In this embodiment, the reflection surface reflects only the light from the additional light source. An entertaining effect is achieved wherein the further light source emits light from the interior of the outlet that illuminates the gaming medium as it is paid out. This additional light source can be operated independently of the principal internal light source. The novel illumination arrangement can be configured so that only light from the additional light source is supplied to the outlet. This can be achieved by obstructing the light from the principal internal light source.

[0013] It is desirable that the reflection surface be formed in the interior of a chute for paying-out gaming media, which chute constitutes a passage for the gaming media. In a practical embodiment, the chute is disposed behind the outlet for the paying out of gaming media. This embodiment is economical as there is no need to prepare a separate reflection surface, because the reflection surface is formed on the interior of the chute behind the outlet.

[0014] In yet another embodiment where the illumination arrangement is provided with a light source disposed outside a lower position of the chute to supply light from the outlet toward the receiver, the illumination arrangement does not require a reflection surface because the light from the light source is directed toward the outlet. Moreover, the illumination arrangement does not impede the passage of gaming media in the chute because the light source is disposed behind the chute.

[0015] In embodiments where the illumination arrangement is provided with a light source arranged at an upper position of the chute, the illumination arrangement does not impede the gaming media in the chute, and will employ reflections to illuminate the receiver fully.

Brief Description of the Drawing

[0016] Comprehension of the invention is facilitated by reading the following detailed description, with the annexed drawing, in which:

Fig. 1 is a plan representation showing a front view that illustrates an embodiment of a slot machine constructed in accordance with the principles of the present invention;

Fig. 2 is a perspective to representation that shows the lower portion of the slot machine of Fig. 1, wherein the decorative panel has been removed;

Fig. 3 is a representation of the interior of the front door of the slot machine of Fig. 1;

Fig. 4 is a partially cross-sectional side representation showing an embodiment of a longitudinal section of the lower portion of the slot machine of Fig. 1;

Fig. 5 is a partially cross-sectional side representation showing a second embodiment of a longitudinal section of the lower portion of the slot machine of the present invention;

Fig. 6 is a partially cross-sectional side representation showing a third embodiment of a longitudinal section of the lower portion of the slot machine of the present invention; and

Fig. 7 is a partially cross-sectional side representation showing a fourth embodiment of a longitudinal section of the lower portion of the slot machine of the present invention.

Detailed Description

[0017] The following is a detailed description of a specific illustrative embodiment of the invention applied in a slot machine.

[0018] Fig. 1 is a plan representation showing a front view that illustrates an embodiment of a slot machine constructed in accordance with the principles of the present invention. As shown in this figure, a slot machine 1 is provided with a main body 3 (also shown in Fig. 2) in the form of a housing, and it is arranged to have a reel unit formed of three reels 7L, 7C, and 7R on a front door 2. There additionally are provided other arrangements or devices on front door 2, including a synthetic resin frame 4 configured with a decorative treatment having the outward appearance of metal (not shown) by the application of a plating material. An indication panel 5 is disposed in front of the three reels, and a decorative panel 6 is fixed in frame 4. Decorative panel 6 is formed of a translucent plastic board colored or decorated so that the interior of main body 3 cannot be viewed from the outside. A fluorescent lamp 20 is arranged as an internal light source to increase the decorative effect behind decorative panel 6.

[0019] A reel window 8 is provided on an indication panel 5 of front door 2 for permitting viewing of reels 7L, 7C, and 7R. The indication panel additionally permits

viewing of a counter readout 9 that provides indication of the number of coins paid-out, as well as indication of the allotted number of coins in the winning prize. Other equipment can be disposed on indication panel 5. A coin input slot 10 is disposed in frame 4, and a player can insert one or more coins 30 as gaming medium (shown in Fig. 2) into the coin input slot. In this embodiment, one to three coins are inserted when a game is commenced. After the coins are inserted, the player can operate a start lever 11 to initiate rotation of the reels.

[0020] Upon actuation of start lever 11, reels 7L, 7C, and 7R rotate simultaneously. When all reels 7L, 7C, and 7R reach the predetermined condition of rotation, which may be the rotating speed or the number of rotations, the functionality of the stop buttons is activated and the operator may manipulate any of three stop buttons 12L, 12C, and 12R. Each of the stop buttons corresponds to a respectively associated reel. After each of three stop buttons 12L, 12C, and 12R has been actuated by the player, the rotation of each reel 7L, 7C, and 7R is stopped, the point of stopping of each reel being responsive to the timing of the button pushing operation by the operator.

[0021] Various kinds of symbols, for example, "7", "BAR", "Cherry", and so on, are painted on each reel 7L, 7C, and 7R. The symbols are indicated in reel window 8 in arrays that correspond to the several winning prize lines 13. These lines are effective to determine whether there has been a win, the amount of the win being responsive to the number of coins inserted when the winning prize is determined. When two or more symbols that stand on one of lines 13 are arrayed as a winning combination on line 13, a well-known hopper (not shown in this figure) in the gaming machine becomes operational and pays coins 30 in an amount responsive to the predetermined value of the winning prize.

[0022] More specifically, one or more coins 30 are ejected via the hopper and enter an opening 23 of a chute 22 for paying-out coins (see Fig. 3). Chute 22 is a passageway for coins and is disposed behind and outlet 14 for the coins that are to be paid out. As shown, outlet 14 is disposed into the central lower region of front door 2. As can be seen from Fig. 3, outlet 14 (not shown in this figure) is arranged near the outlet of chute 22, whereby the coins are paid out from outlet 14 and deposited in a coin receiving tray 15 that is disposed forward of the lower position of main body 3.

[0023] Fig. 4 is a partially cross-sectional side representation showing an embodiment of a longitudinal section of the lower portion of the slot machine of Fig. 1. In this specific illustrative embodiment, there is shown to be provided an illumination arrangement that uses a fluorescent lamp 20 as a source of light that illuminates tray 15. The light is supplied via the interior of outlet 14. The illumination arrangement is provided with an aperture 27a disposed at the lower portion of a frame 4 of front door 2 through which the light is transmitted whereby some light emitted from fluorescent lamp 20 is prop-

agated to the interior of chute 22. The interior of chute 22 preferably is made from a metal, a plated material, or other suitable material that will function to reflect the light that enters chute 22 after being propagated through aperture 27a substantially toward outlet 14. The path of the light is generally shown by a dashed line in Fig. 4.

[0024] In the specific illustrative slot machine described hereinabove, when a power supply (not shown) is energized, fluorescent lamp 20 is turned on and the decorative panel is illuminated. Simultaneously, the light is propagated from the interior of outlet 14 to illuminate tray 15. Thus, a player readily can see coins 30 being deposited into tray 15, and easily can confirm the amount being paid out. It is an additional feature of the present invention that a decorative effect is achieved when coins 30 are being paid out, as a result of the metallic glistening effect resulting from the reflection of the light that impinges thereon from the interior of outlet 14.

[0025] It is desirable that the front of aperture 27a formed through the lower part of frame 4 of front door 2 be provided with an optical transmission sheet 21 to prevent that coin 30 that enters the chute 22 from opening 23 accidentally enter aperture 27a. In embodiments of the invention where optical transmission sheet 21 is formed of a transparent board made from a colored acrylic acid resin, the ability of a player to confirm the number of coins being deposited into tray 15 and of the visual decorative effect are enhanced by the coloration added to the light of fluorescent lamp 20 by decorative panel 16 that, as previously stated, is supplied from within outlet 14 toward tray 15. It is to be understood that light sources other than fluorescent lamps may be used in the practice of the invention.

[0026] Fig. 5 is a partially cross-sectional side representation showing a second embodiment of a longitudinal section of the lower portion of the slot machine of the present invention. As shown in this figure, a second light source 24, in addition to fluorescent lamp 20, is disposed in the lower portion of frame 4 of front door 2. The second light source is arranged, in this embodiment, beneath fluorescent lamp 20 to, and has a cover 25 arranged thereover. In this specific illustrative embodiment, only the light from second light source 24 is propagated toward chute 22 from aperture 27a. In this embodiment, even if fluorescent lamp 20 is always turned on when power to the gaming machine is switched on, second light source 24 will illuminate the vicinity of tray 15. Second light source 24 can be operated independently of fluorescent lamp 20. As previously indicated, the visual effect achieved by the sparkling characteristic of coins 30, during payout of a winning prize can be achieved even if only second light source 24 is turned on when coins 30 are paid out.

[0027] Fig. 6 is a partially cross-sectional side representation showing a third embodiment of a longitudinal section of the lower portion of the slot machine of the present invention. As shown, second light source 24

may be disposed outside chute 22. In this embodiment, a pleasant instrument of illumination, such as a fluorescent lamp or a light bulb, is used as second light source 24, and is shown in this figure to be disposed outside the lower position of chute 22. An aperture 27b is formed between second light source 24 and chute 22. In this specific embodiment, aperture 27b is covered by a translucent board 26, which has many surface pits (not shown) for diffusing the light. Translucent board 26 does not preclude coins 30 from being passed through chute 22, notwithstanding that the coins, which are made from materials such as metals characterized with high hardness, may collide therewith. In one embodiment of the invention, board 26 is made of a metal or hard resin, the board material having a multiplicity of small apertures therethrough for permitting passage of the light.

[0028] The light issued by second light source 24 is propagated through board 26, and is caused to enter chute 22. The light then is caused to be emitted from outlet 14. In addition, the tray is illuminated, as previously described. The illumination from second light source 24 is shown by a plurality of dashed lines in Fig. 6. In addition to the foregoing, tray 15 can be illuminated by light of any color, which may be emitted directly by second light source 24, or by the application of a predetermined coloration to board 26, as described hereinabove with respect to the embodiment of Fig. 4.

[0029] Fig. 7 is a partially cross-sectional side representation showing a fourth embodiment of a longitudinal section of the lower portion of the slot machine of the present invention. As shown in this figure, second light source 24 is disposed at the upper position of chute 22, and the light from light source 24 is shown to enter the chute 22 via an aperture 27c formed at the upper part of chute 22. In accordance with this embodiment of the invention, the light from second light source 24 is passed through aperture 27c of chute 22 and thereby is caused to enter chute 22. The light reflected within chute 22 is emitted from outlet 14, and tray 15 is correspondingly illuminated. A dashed line in Fig. 7 is employed to represent to the path of the light. As previously described, any predetermined coloration of light can be supplied by disposing an optical transmission sheet between aperture 27c of chute 22 and second light source 24. This invention is not limited to a slot machine as described in the specific illustrative embodiment herein, and additionally can be applied to other forms of gaming machines that pay out gaming media.

[0030] By way of example, in a pachinko machine, the illumination arrangement can be disposed in the interior of a pachinko ball outlet, the pachinko ball being the gaming medium. The illumination arrangement of the present invention creates a conspicuous decorative effect when the pachinko ball is paid out, by virtue of reflecting light originating from within the outlet. Such reflecting light is in addition to the illumination obtained via a receiving plate (not shown) which may consist of an upper plate and a lower plate.

[0031] Although the invention has been described in terms of specific embodiments and applications, persons skilled in the art can, in light of this teaching, generate additional embodiments without exceeding the scope or departing from the spirit of the claimed invention. Accordingly, it is to be understood that the drawing and description in this disclosure are proffered to facilitate comprehension of the invention, and should not be construed to limit the scope thereof.

Claims

1. A gaming machine of the type having an outlet for paying out gaming media, and a receiver for receiving the paid-out gaming media, the receiver being disposed forward the outlet, the gaming machine comprising an illumination arrangement for supplying light from the interior of the outlet, the light being directed toward the receiver.
2. The gaming machine of claim 1, wherein the illumination arrangement comprises an internal light source for emitting a light that illuminates a decorative panel disposed on the front of the gaming machine, and there is further provided a reflection surface for reflecting light emitted by the internal light source in the direction of the outlet for paying out gaming media.
3. The gaming machine of claim 2, wherein the reflection surface is formed inside of a chute for paying-out gaming media, the chute being arranged as a passage for the gaming media and disposed behind the outlet for paying out gaming media.
4. The gaming machine of claim 1, wherein the illumination arrangement comprises:
 - an internal light source for emitting a light that illuminates a decorative panel disposed on the front of the gaming machine;
 - an optical transmission member arranged to transmit light from the internal light source to the interior of the outlet for paying out gaming media; and
 - a reflection surface for reflecting the light transmitted by the optical transmission member toward the outlet for paying out gaming media.
5. The gaming machine of claim 4, wherein the reflection surface is formed in the interior of the chute for paying-out gaming media, the chute being arranged as a passage for the gaming media and disposed behind the outlet for paying out gaming media.
6. The gaming machine of claim 1, wherein the illumination arrangement comprises:

a further light source for emitting a further light;
and
a reflection surface for reflecting exclusively the
further light in the direction of the outlet for pay-
ing out gaming media.

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7. The gaming machine of claim 6, wherein the reflection surface is formed in the interior of a chute for paying-out gaming media, the chute being arranged as a passage for the gaming media and disposed behind the outlet for paying out gaming media.

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8. The gaming machine of claim 1, wherein the illumination arrangement further comprises a further light source that is disposed outside of a lower position of a chute for paying out gaming media, the chute being arranged as a passage for the gaming media and disposed behind the outlet for paying out gaming media.

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9. The gaming machine of claim 1, wherein the illumination arrangement further comprises:

a further light source arranged in an upper position of a chute for paying-out gaming media, the chute being arranged as a passage for the gaming media and disposed behind the outlet for paying out gaming media; and
a reflection surface for reflecting light from the light source toward the outlet for paying out gaming media.

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FIG. 1

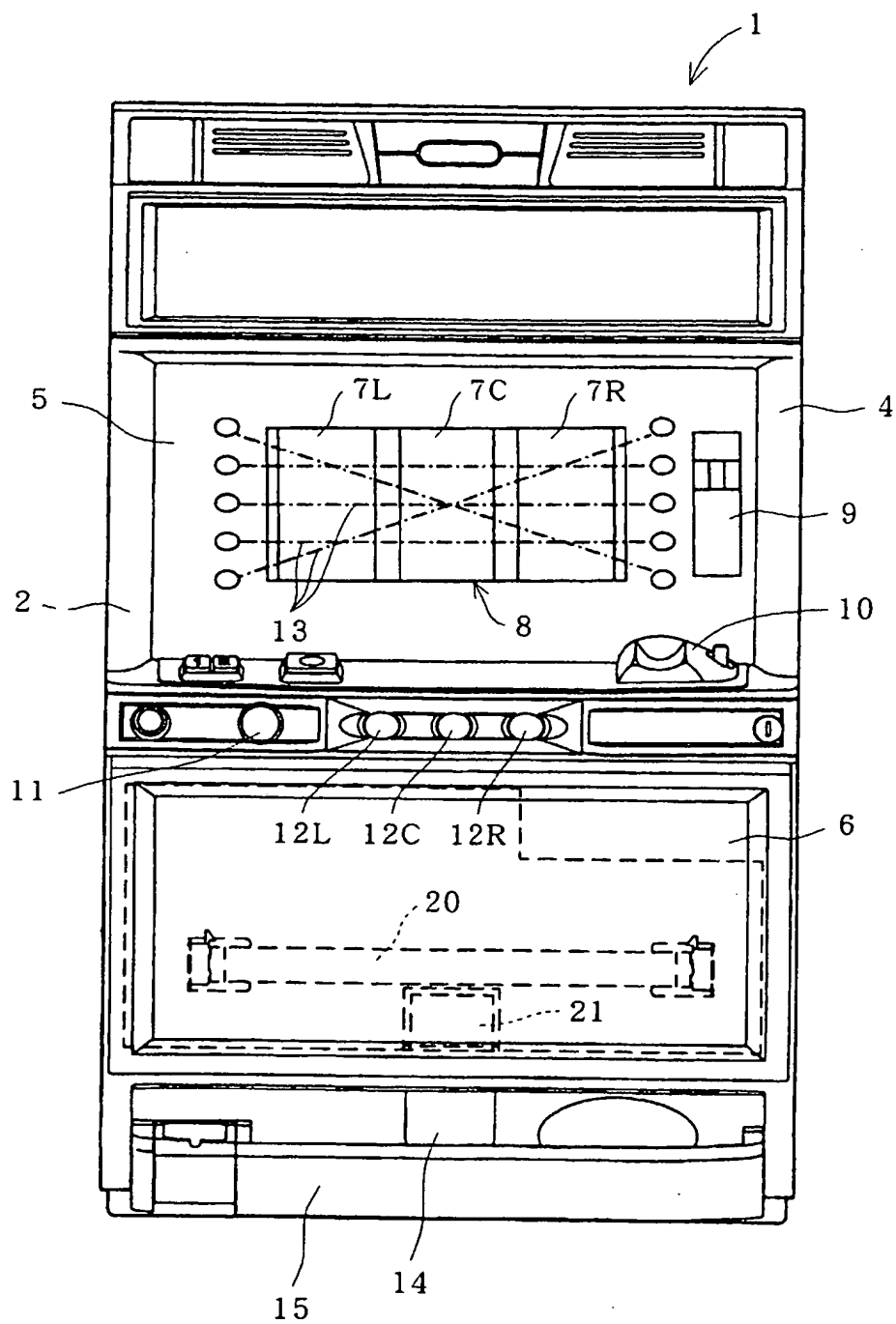


FIG. 2

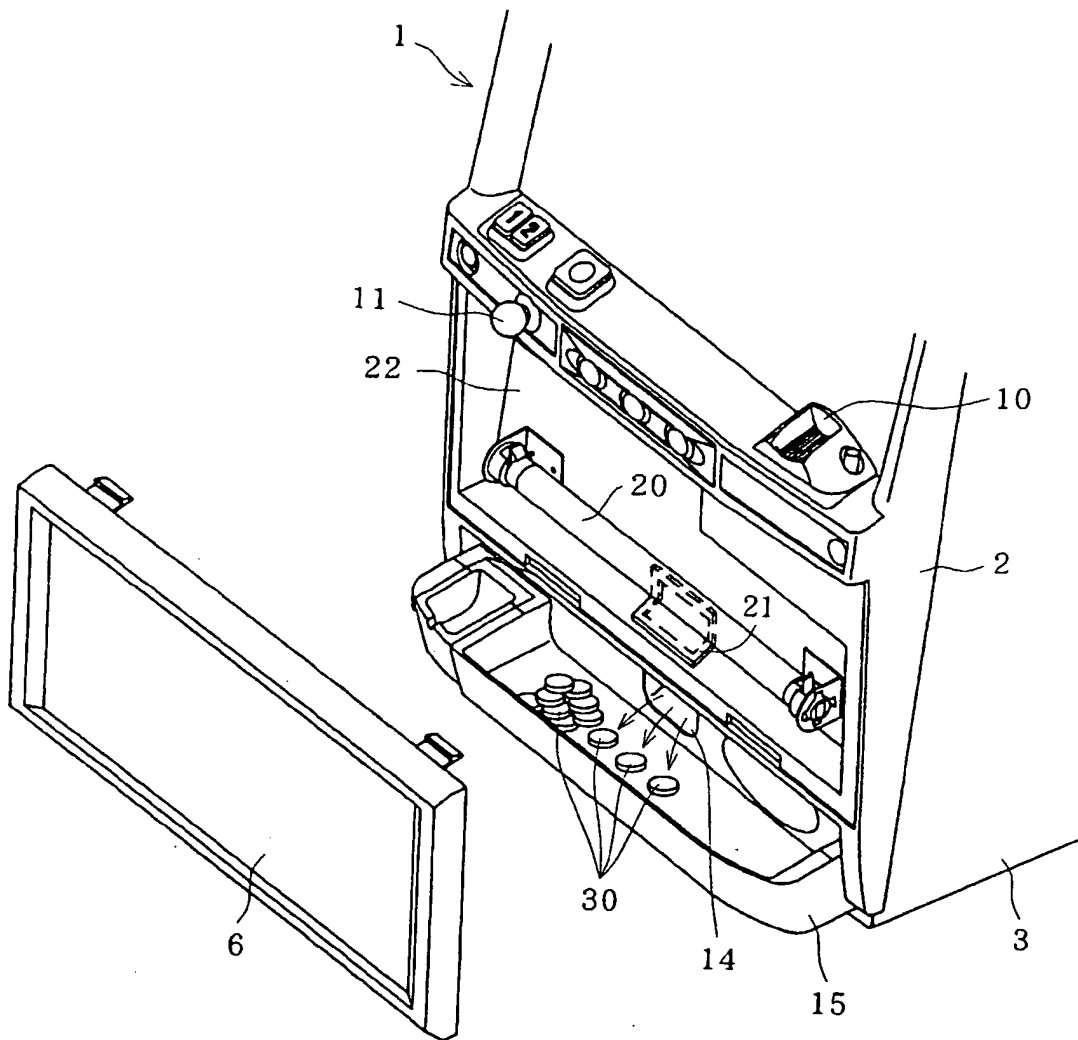


FIG. 3

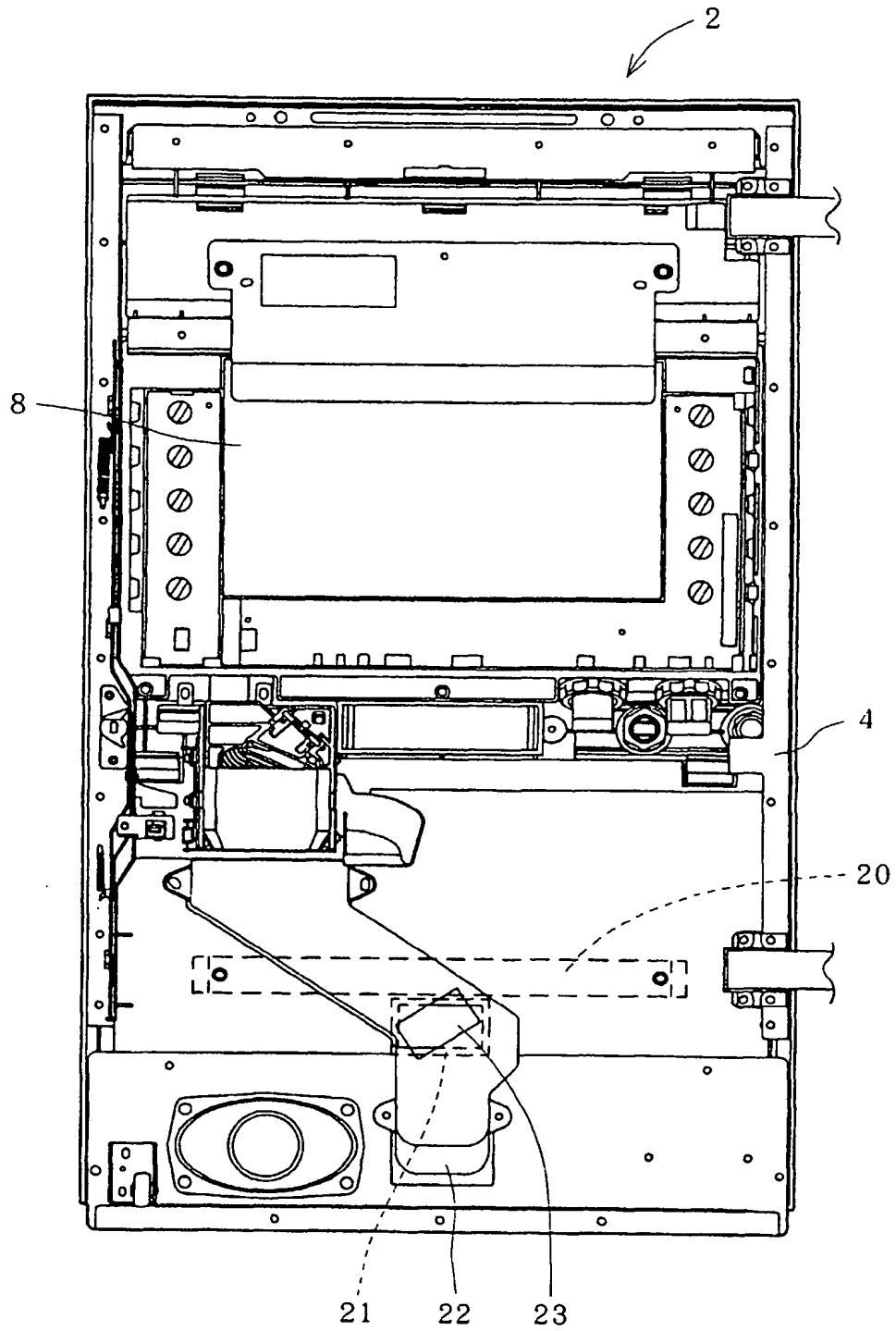


FIG. 4

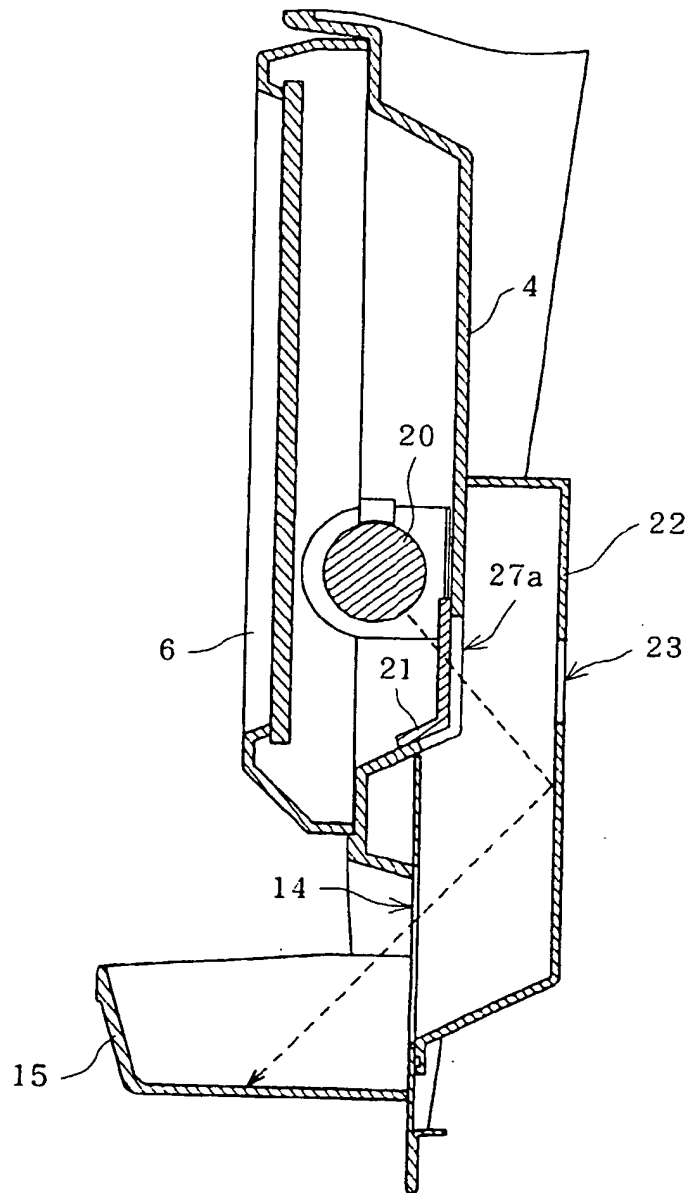


FIG. 5

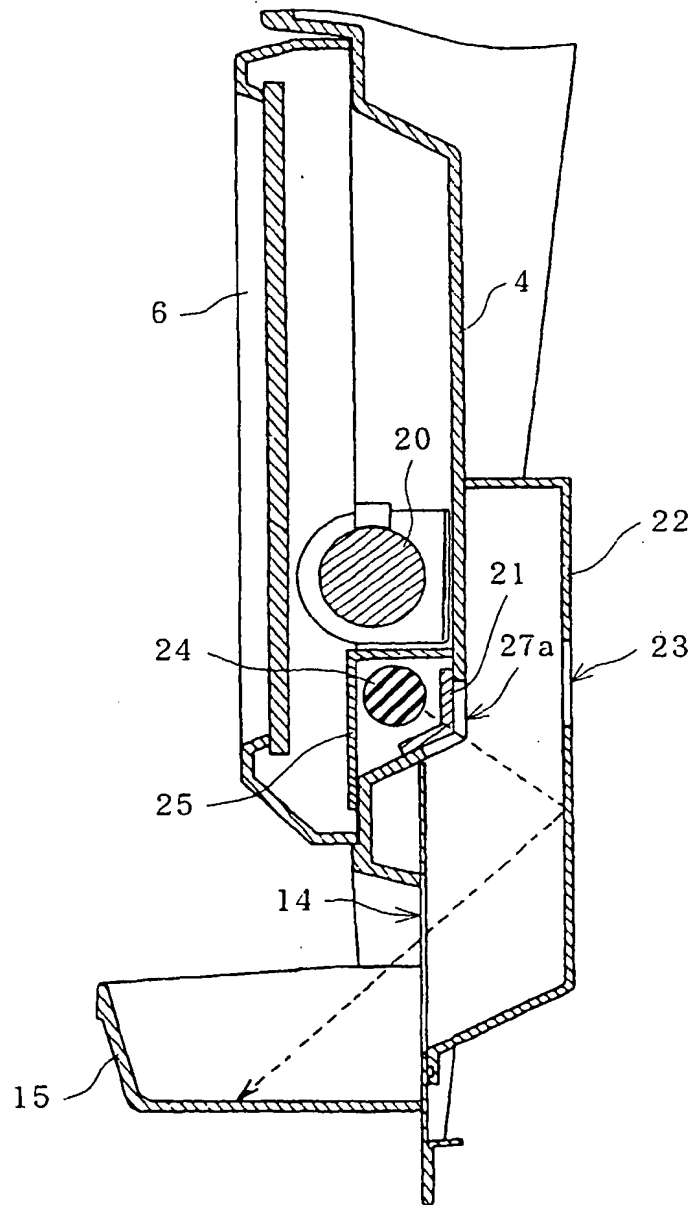


FIG. 6

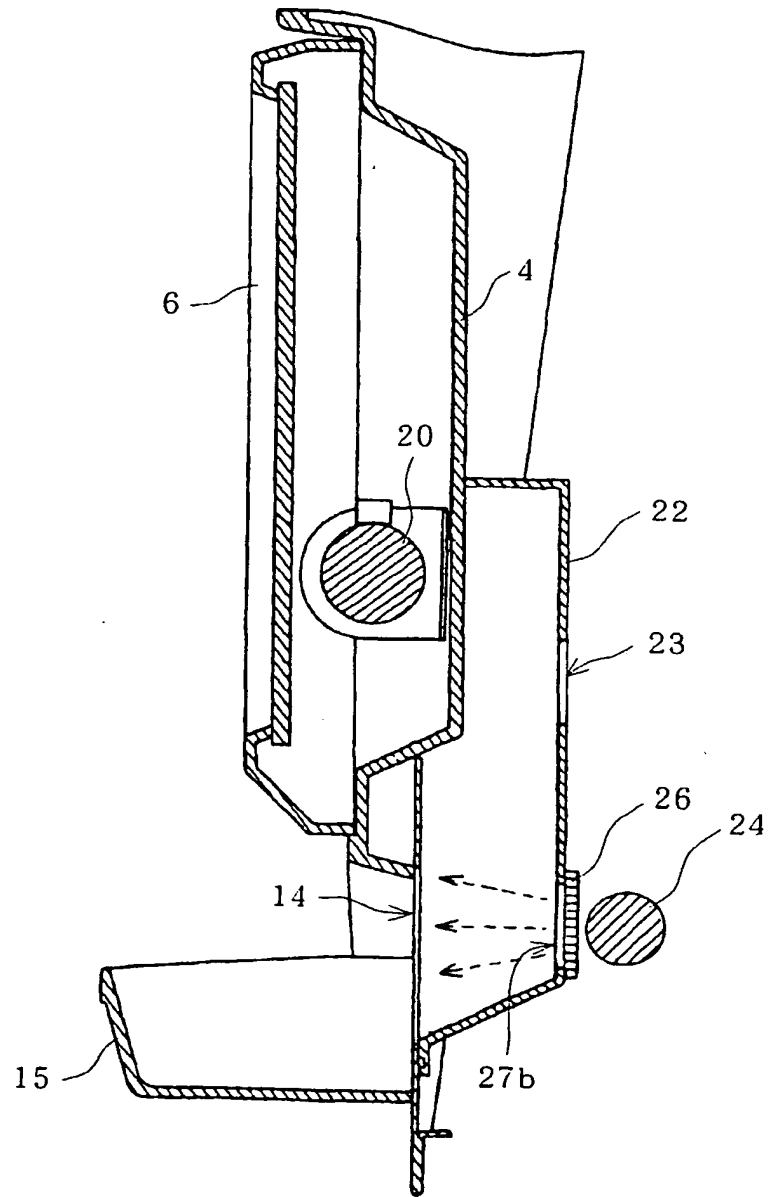
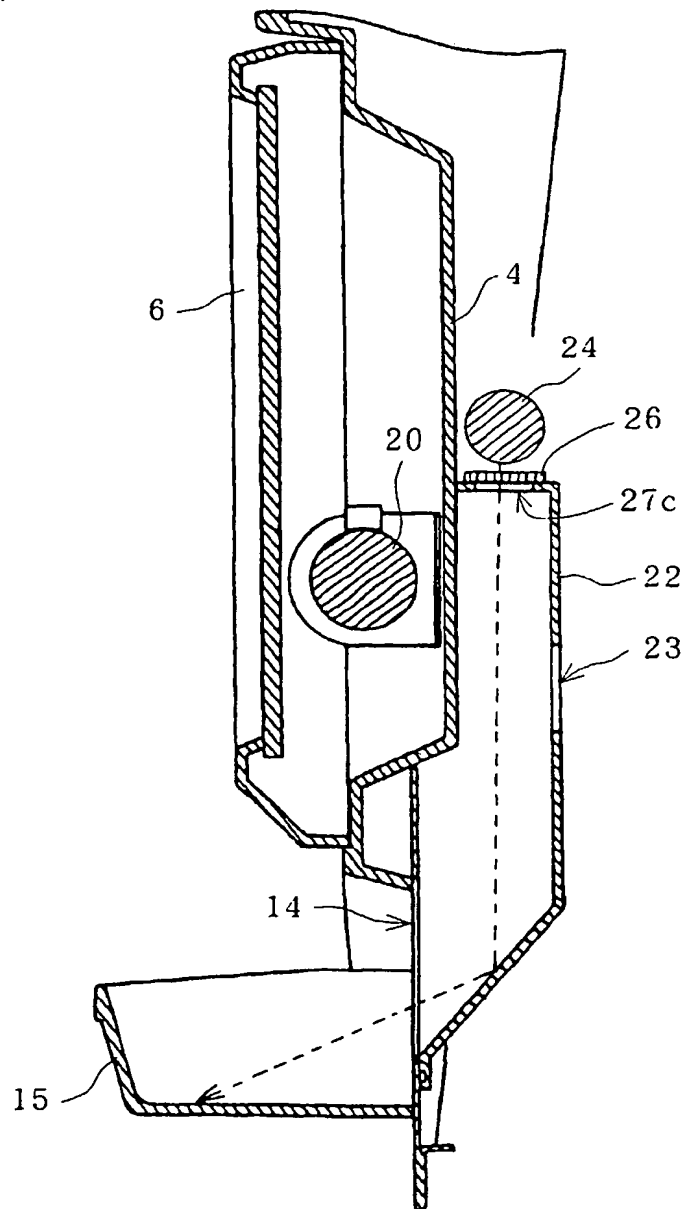
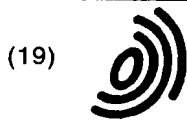


FIG. 7



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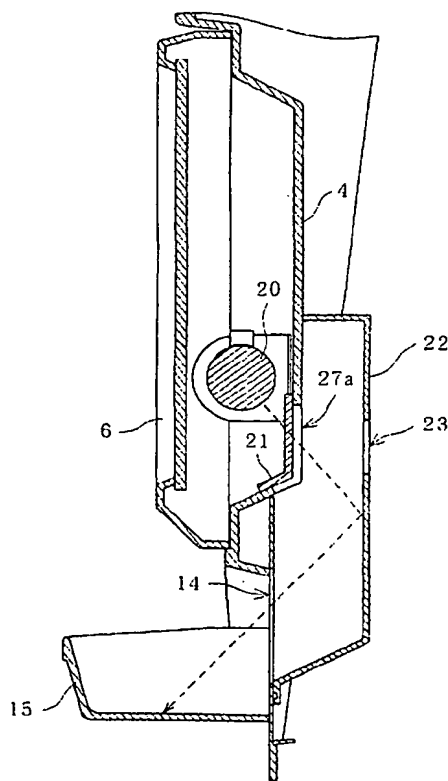
(30) Priority: **18.12.1997 JP 34951297**

(71) Applicant: **Aruze Corporation**
Tokyo (JP)

(54) **Gaming machine**

(57) A gaming machine that is provided with an outlet for paying out gaming media has a receiver for paying-out the gaming media, the receiver being disposed forward of the outlet. The receiver is illuminated so as to permit the player to view the gaming media that has been collected in the receiver, whereby the amount thereof readily can be confirmed. Illumination of the receiver is achieved from within the gaming machine, the illumination being emitted from the outlet for paying the gaming media. Thus, as the gaming media is paid out, a glistening effect that is entertaining and visually pleasing is created. Illumination of the receiver, which may be in the form of a receiver tray, is effected, in one form of the invention, by an internal source of illumination that also illuminates the front panel of the gaming machine. Light is propagated through a transmission element to the receiver. In a preferred form, a further light source is disposed behind the chute via which the gaming media is provided to the outlet. Depending upon the location of the further light source with respect to the chute, multiple reflections are employed within the chute to deliver the light to the outlet. The coloration of the light that is delivered to the outlet may be controlled by the further light source itself or a colored transmission element. This permits interesting decorative coloration schemes to be effected, thereby raising the player's interest in playing the game.

FIG. 4



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EUROPEAN SEARCH REPORT

Application Number
EP 98 31 0399

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
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			G07F
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 11 August 2003	Examiner BREIDENICH, M
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

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EP 98 31 0399

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